

**MEMORANDUM OF UNDERSTANDING
BETWEEN
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
AND
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
CONCERNING
AVIATION ENVIRONMENTAL COMPATIBILITY**

I. BACKGROUND

The October 9, 1998, "Agreement between the Department of Transportation, Federal Aviation Administration (FAA) and National Aeronautics and Space Administration (NASA) Concerning A Partnership To Achieve Goals in Aviation and Future Space Transportation," confirmed a policy of the FAA and NASA to maintain a close partnership in the pursuit of complementary goals and to coordinate planning and tracking of accomplishments toward achievement of these goals. This policy includes ensuring "the long-term environmental compatibility of the aviation system," as directed by the 1995 White House National Science and Technology Council (NSTC) report entitled "Goals for a National Partnership in Aeronautics Research and Technology."

The 1995 NSTC report recognized that "environmental issues are likely to impose the fundamental limitation on air transportation growth in the 21st century." In its 1999 "National Research and Development Plan For Aviation Safety, Security, Efficiency and Environmental Compatibility," the NSTC further noted that "understanding the effects of aviation on the environment and developing technology for reducing noise and emissions are essential to sustaining aviation's vitality."

II. RATIONALE

Within the Federal Government, NASA is responsible for maintaining U.S. leadership in aeronautical science and technology, and the FAA is responsible for programs to reduce the adverse effects of noise and emissions from civil aviation. NASA carries out its responsibility through programs of focused technology development and basic research. The FAA establishes standards for mitigating the effects of aircraft noise and assists the Environmental Protection Agency (EPA) in establishing standards for aircraft engine emissions that affect air quality. The FAA is also responsible for certification of aircraft and engine performance to regulatory standards, including preparation of advisory materials.

To assist in policymaking, the FAA develops models that give insight into the systemwide consequences of alternative courses of action. In general, policy for mitigation of aircraft noise and engine emissions is a product of the International Civil Aviation Organization (ICAO), where the FAA represents the United States on the Committee for Aviation Environmental Protection (CAEP).

III. OBJECTIVE

The objective of this Memorandum of Understanding (MOU) is to establish the roles for the FAA and NASA in achieving broad national goals for environmental compatibility of aviation and provide a framework for FAA and NASA collaboration. As outlined in the 1999 NSTC plan, the FAA and NASA are working with the aviation and environmental communities to:

- Understand the effects of aviation on public health and the environment.
- Develop technology for reducing aircraft noise and aircraft engine emissions.

Implementation of the NSTC plan will include cooperative research and technology development activities having these thrusts:

- Reducing the impact of aircraft noise on airport communities. The long-term NASA and FAA vision is a noise-constraint-free air transportation system with a 20-dB reduction in aircraft noise from the 1997 state-of-the-art technology.
- Reducing aircraft engine emissions of nitrogen oxides (NO_x) and other pollutants that endanger public health and the environment. NASA's long-term technology goals are to enable a 70-percent reduction in NO_x, relative to current ICAO standards, by FY 2007 and 80 percent by FY 2022. The FAA's related goal is to assess the benefits, feasibility, and economic reasonableness of such technology and to incorporate findings into appropriate policy that is coordinated with the EPA health-based National Ambient Air Quality Standards under the Clean Air Act, 42 U.S.C. §7401 et seq.
- Reducing aircraft engine emissions that affect climate and/or stratospheric ozone. NASA's goals include assessing the atmospheric effects of aviation through scientific studies and developing increasingly efficient aircraft and engine systems. Specific goals for the greenhouse gas carbon dioxide (CO₂) are a 25-percent reduction by FY 2007 and 50 percent by FY 2022 from the year 1997 state of the art. The FAA's related goals are to assist the scientific studies with specification of operations information and to assess the benefits, feasibility, and economic reasonableness of advanced technology. Findings will be incorporated into an appropriate policy that is coordinated with the work program of CAEP and related national programs.

IV. AUTHORITY

- A. NASA: This MOU is entered into under the authority of 42 U.S.C. §2473(c), Section 203(c), of the National Aeronautics and Space Act of 1958, as amended.
- B. FAA: This MOU is entered into under the authority of 49 U.S.C. §106(1)(6) and (m).

MOU No: FNA 09

V. SCOPE OF ACTIVITIES AND MANAGEMENT

- A. This MOU encompasses all FAA research, engineering and development activities, through deployment, and all NASA activities associated with reduction of aircraft noise and aircraft engine emissions.
- B. Policy direction shall be provided through the FAA/NASA Executive Committee, pursuant to the previously referenced 1998 Agreement.
- C. With the cooperation and advice of the FAA, NASA shall manage and provide resources for scientific studies of the atmospheric effects of aviation and aircraft and engine research and technology development programs.
- D. With the cooperation and advice of NASA, the FAA shall manage and provide resources for development and implementation of methodologies for certification of aircraft and engine performance to regulatory standards and for simulating aviation's environmental burdens, specifically including noise and emissions that affect air quality and climate or stratospheric ozone.
- E. The FAA and NASA shall collaborate in providing resources and managing environmental compatibility research that involves flight and ground operations in the National Airspace System (NAS).
- F. Memoranda of Agreement (MOA's) between the FAA and NASA, specifically defining responsibility for management and resources, will be required when performing or collaborating in cooperative research and technology development activities.
- G. The following officials are responsible, depending on the specific activity, for managing all agreements encompassed by this MOU:
 - Director, Office of Environment and Energy, FAA;
 - Director, R&T Division, Office of Aerospace Technology, NASA;
 - Director, Strategy & Analysis Division, Office of Aerospace Technology, NASA; and
 - Director, Science Division, Office of Earth Science, NASA.

VI. PRODUCTS, MILESTONES, AND REPORTS

Each MOA encompassed by this MOU shall be prepared by the agency leading the activity for the approval of the cooperating agency and will describe objectives, plans, schedules, resources, products, and foreseen benefits for a specified period of performance.

MOU No: FNA 09

VII. ANTI-DEFICIENCY ACT

All activities under or pursuant to this MOU are subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. §1341. This MOU is not a funding agreement and does not obligate or transfer funds.

VIII. CANCELLATIONS

The "Memorandum of Understanding Between the Federal Aviation Administration and the National Aeronautics and Space Administration for Environmental Compatibility Research," dated September 20, 1990, is hereby cancelled.

IX. MODIFICATION OR TERMINATION

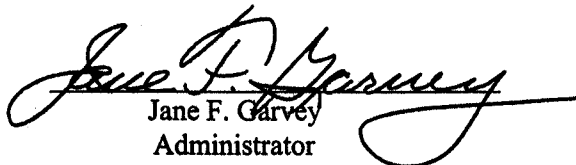
This MOU may be modified or terminated at any time upon the written consent of both parties.

X. PERIOD OF PERFORMANCE

This MOU shall become effective upon the date of the last signature of the approving officials appearing below and shall remain in effect unless terminated upon written request of either party. All subsequent MOA's under this MOU will be limited to an initial period of performance not to exceed 5 years, although they may be renewed for additional periods not to exceed 5 years for each renewal period. These MOA's may also include Economy Act orders, pursuant to 31 U.S.C. §1535, should one agency order goods or services from the other in fulfillment of an agreed upon activity.

AGREED:

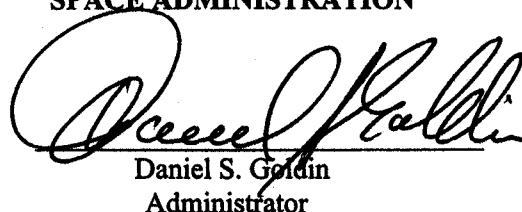
DEPARTMENT OF TRANSPORTATION/ FEDERAL AVIATION ADMINISTRATION


Jane F. Garvey
Administrator

OCT 6 2000

Date

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION


Daniel S. Goldin
Administrator

Sept 26, 2000

Date